

# Pennsylvania Cave Conservancy

cave database



developed in 1982 by Keith D. Wheeland, NSS 2878

February 2007

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## Definition of a Pennsylvania Cave

A cave is a natural cavity beneath the earth's surface whose dimensions are measurable in feet, whose walls are bedrock, and usually extending into absolute darkness. Ref. Stone, R.W. (1953)

## Official Criteria

The following criteria are used to list or count the number of caves within the state of Pennsylvania for official purposes. (Developed in 1997)

- 1) A cave in limestone must be at least 20 feet in length.
- 2) A cave in non-limestone must be at least 40 feet in length.
- 3) The length of a shelter shall be deeper from front to back than the width of its opening.
- 4) A roofless cave (pit) must be at least 20 feet deep.
- 5) A cave may be considered for the list if it does not meet the above criteria if it has other distinguishing features. These may include caves that have historical, archeological, paleontological, or biological significance.

Cave segments within a mine shall be considered one cave. The lengths of the segments added together shall determine its length. The segment highest in elevation and the segment lowest in elevation shall be used to determine its internal relief.

Only surveyed lengths and internal reliefs will be used to determine which caves are shown on a list of long and deep caves.

# PCC Cave Database System

## General

The computer system was originally developed to catalog and maintain data for caves of Pennsylvania. There is an attempt to maintain data on any cave that has appeared in the literature. Therefore the system allows for natural caves (Commercial and ex-commercial) and cave systems, fictional caves, shelters, and mines. Caves which have been destroyed, or otherwise closed are included.

The system, as it now exists, runs under Microsoft Access. ®

The cave records in tblCaves are of three different types. They are as follows:

- 1) A record to describe a single entrance cave. (Type record N)
- 2) A record to describe a cave system. (Type record S)
- 3) A record to describe an entrance. (Type record P)

These records all have the same structure. Because of the nature of the records, not all types have all their data fields complete. For example, an Entrance Record contains a length of zero.

A cave system consists of one Cave System Record plus a maximum of five entrance records. A single-entrance cave has its system record and its entrance record combined into one record.

A cave system is described as a multi-entrance cave. In order to create a cave system, the user must first describe a Cave System Record. Then the Entrance Records can be attached to this Cave System Record to form a cave system. Although it sounds complex, the system is simple to use. Once a cave system is created, caution should be taken to delete all entrance records if the cave system needs to be deleted.

The database consists of eight tables that are described in these pages.

**tblAlt**  
**tblCaves**  
**tblCite**  
**tblCodes**  
**tblCounty**  
**tblLife**  
**tblQuads**  
**tblSigns**

## tblAlt

This file contains alternate names for caves. There may be multiple alternate names for the same cave.

<b>Ident</b>	The identifier that links back to tblCaves.
<b>Dte</b>	The most recent date the record was updated.
<b>Altname</b>	The alternate name for the cave.

## tblCaves

The tblCaves is the main table which makes up the Cave Database. Many of the data items are coded to save space, provide consistency, and aid in queries. A separate tblCodes table is used to provide meanings for the codes when the data is printed or displayed. The abbreviations in parentheses after the item are the identifiers for the codes in the codes table, tblCodes

<b>Ident</b>	This is a four digit number assigned consecutively. It is used to uniquely identify the cave and to link the record to other tables in the system. It is also used to link cave systems to their entrance records. A cave system may have a maximum of five entrance records. See ID1 through ID5.
<b>Typerec</b>	A one character code that identifies the record as one of the following.  N - A one-entrance cave S - A Cave System record P - An entrance record that is linked to a Cave System
<b>Name</b>	A 35 character field that contains the preferred name for the cave. A cave may have alternate names which are stored in a separate table, tblAlt.
<b>Conum (CTY)</b>	A three digit code to designate the county within the State. There is a table which contains the county code and county name, tblCounty. Ref. FIPS PUB 6-3 (1979).
<b>Quad (QUA)</b>	A four character code to identify the 7.5 (or 15) minute quadrangle in which the cave entrance is located.
<b>Prov (PRO)</b>	A four character code to designate the physiographic province (or sub province) in which the cave entrance is located. (In Pa. Ref. PA-DER (1975).)
<b>Drainage (DRA)</b> <b>4</b> PCC-Cave	A three character code which designates the drainage basin and sub-

basin in which the cave entrance is located. (In Pa. Ref. PA-DER (1975))

<b>Latitude</b>	The angular distance, measured north or south from the equator, of a point on the earth's surface, expressed in degrees. The bearing is not included. Stored as 6 digits without the dashes.
<b>Longitude</b>	The angular distance east or west on the earth's surface, as measured from the prime meridian at Greenwich, England. The bearing is not included. Stored as 6 digits without the dashes.
<b>Clasfied (CLS)</b>	A code which indicates that the record for the cave contains classified information. Currently there are no caves in the database that are classified.
<b>Opnclsd (OPC)</b>	A one-letter code to indicate whether the entrance is physically open or closed and to what degree.
<b>Natstate (STU)</b>	A one-letter code which indicates whether the cave is in its wild state, has been improved, is a mine, or a fictional cave, etc.
<b>Elevatn</b>	The height above mean sea level at the cave entrance measured in feet.
<b>Strike</b>	The compass orientation of the line of intersection formed by a dipping stratum with the horizontal plane. Shown in quadrant type units east or west of geodesic (true) North. Stored as 4 characters.
<b>Dip</b>	The angle which a stratum or similar feature makes with the horizontal plane. It is measured in the plane perpendicular to its strike direction. Stored in five characters.
<b>Entrtype (ENT)</b>	A two-letter code which best describes the manner in which the cave entrance intersects the land surface at the present time. The codes are grouped and arranged into three categories. Those beginning with "E" are man-made (excavated). Those beginning with "S" are stream related. Those beginning with "D" are formed without surface water action (dry except for seepage). The codes were developed by Dr. Gordon Dayton.
<b>Entrsize (RES)</b>	A one-letter code to denote the relative size of the entrance. This is important when trying to find the entrance for the first time. The codes were developed by Dr. Gordon Dayton.
<b>Relief (in feet)</b>	The internal relief. The vertical distance between the highest and lowest elevations in the cave.
<b>Length (in feet)</b>	The total length of traverse lines drawn through all passages of the cave.

<b>Lensrce</b> (LSC)	A one-letter code to indicate the source of the length data.
<b>Lenattr</b> (LNA)	A one-letter code to further qualify the length - to denote estimation, additional, or totals, etc.
<b>Hazard</b> (HAZ)	A code to indicate extraordinary hazards which the caver may encounter in visiting the cave. These should be used sparingly and are meant to be used in those cases that are rare. The codes are one letter each. You may enter up to nine codes for each cave.
<b>Origin</b> (ORI)	A one-letter code to indicate the major factor responsible for the formation of the cave. Ref. White, W. B. (1976)
<b>Sensitiv</b> (SEN)	A one-letter code to indicate whether the cave visitor must use special care over and above the usual regard for conservation. You may enter up to four codes in the field.
<b>Water</b> (WAT)	A one-letter code to indicate the presence of water at times of normal rainfall. The usual condition of the cave.
<b>Equip1</b> <b>Equip2</b> (EQU)	Any special equipment required or desirable in order to visit a major portion of the cave.
<b>Formatn</b> (FOR)	A 6-character code which indicates the geologic formation in which the principal portion of the cave is located. This code may refer to a member of a formation, a single formation, or a group of formations. This will depend upon the level of detail that is known about the cave.

The code is made up of the following items.

1. The geologic age, such as Paleozoic.
2. The geologic period, such as Ordovician.
3. The sub-period as shown on the PA Geologic Map, such as upper.
4. The geologic formation such as Benner Formation.
5. The geologic member within the formation, such as the Valentine Limestone within the Benner Formation.
6. The province or area in which the formation is located as described on the PA Geologic Map, such as Great Valley.

A group is denoted by the letter "G" in the fourth position from the left. The characters to the right of the "G" consist of a letter and a number. For example, T2 as in the Upper Trenton Group 3W-GT2. The code was developed by Dr. Gordon Dayton and Keith D. Wheeland.

<b>Litholgy</b> (LTH)	A three-letter code which indicates the physical characteristics (lithology) of the formation in which the cave is located. The codes were adapted from those found in reference PA-DER (1975).
<b>Rlseform</b> (REL)	A one-letter code to indicate whether a written liability waiver must be signed as a condition for permission to visit the cave.
<b>Entryacc</b> (ENA)	A one-letter code to indicate the degree of freedom for gaining permission to visit the cave. See also RestrictDate.
<b>Ownrtype</b> (OWN)	A one-letter code to indicate the type of owner.
<b>Profile</b> (PRF)	A one-letter code to indicate the general nature of the cave as viewed in profile.
<b>Pasgptrn</b> (PPN)	<p>The structure of the passages and the pattern formed by their relation to each other. The slope, type of structure, and the complexity of the structure of the cave. the codes are adapted from those referenced in White, W. B. (1976) and Palmer, A. N. (1975).</p> <p>Network mazes consist of an angular grid of intersecting fissures that form by solutional widening of nearly all major joints to roughly the same size openings.</p> <p>Anastomatic mazes are formed ov curvilinear tubes, typically of circular or elliptical cross-section that intersect in a random or braided configuration.</p> <p>Spongework mazes consist of interconnected, non-tubular solution cavities of varied sizes and irregular geometry aranged in an apparant random, three-dimensional pattern.</p>
<b>Pasgdens</b> (PDN)	A code to indicate the density or relative closeness of the passages to each other.
<b>Mapgrade</b> (MGR)	<p>The grade of the map (plan and/or profile view) of the cave. The codes were adapted from reference Ellis, B. M. (1976)</p> <ol style="list-style-type: none"> <li>1. A sketch of low accuracy where no measurements have been made.</li> <li>2. A controled sketch (angles taken)</li> <li>3. A compass and pace measurement.</li> <li>4. A grade between 3 and 5</li> <li>5. A magnetic survey where measurements are as follows:</li> </ol>

Horizontal and vertical angles to the nearest 1 degree, distances to within 10 centimeters, and station position error less than 10 centimeters.

6. Theodolite or transit and tape survey.

<b>Mapclass</b> (MCL)	A one-letter code to indicate the general reliability of the map (plan and/or profile view). Ref. Ellis, B. M. (1976)
<b>Mapqual</b> (MQL)	A one-letter code to indicate the quality of the cave map (plan and/or profile view).
<b>Mapyear</b>	The four-digit year in which the cave map was drawn or most recently updated.
<b>Mapstore</b> (MST)	A three-letter code to indicate the storage location for the original map (or a full size copy of the original if the location of the original is unknown).
<b>Chngdate</b>	The date on which the latest change was made to the cave record. This is very important to enter. It can be used to keep track of those records which were updates since the last report, for example.
<b>Remarks</b>	A 100-character field to record some important information about the cave.
<b>ID1-ID5</b>	<p>These five fields are used to link Cave System records with their Entrance Records. In the Cave System record, you store the Idents of all the Entrance Records. If a Cave System has two entrances, ID1 would contain the Ident of the first entrance record, ID2 would contain the Ident of the second entrance record.</p> <p>In each of the entrance records for the Cave System, you would store the Ident of the Cave System record in ID1. Nothing is entered in the ID2-ID5 fields for Entrance Records.</p>
<b>Entry Access and Owner information</b>	There is one area each for entering information about the access control and for the owner. If the owner controls access, leave the entry access information blank, and enter the information into the owner fields.
<b>EntryName</b>	The name of the person or organization that controls access.
<b>EntryAdr1</b>	The first line of the address of the person or organization that controls access.



<b>EntryAdr2</b>	The city/state/zip of the person or organization that controls access.
<b>EntryPhone</b>	The phone number of the person or organization that controls access.
<b>EntryEmail</b>	The email address of the person or organization that controls access.
<b>OwnerName</b>	The name of the person or organization that owns the cave.
<b>OwnerAdr1</b>	The first line of the address of the owner.
<b>OwnerAdr2</b>	The city/state/zip of the owner.
<b>OwnerPhone</b>	The phone number of the owner.
<b>OwnerEmail</b>	The email address of the owner.
<b>RestrictDate</b>	A one-letter code to indicated dates that the cave may be closed during the year. Generally for bats.

## tblCite

This table may contain multiple references to citations about the cave. When updating or adding a new cave, this table should also be updated.

<b>Ident</b>	The identifier of the cave described in tblCaves.
<b>Dte</b>	The date the citation was added to tblCite.
<b>Citecode (REF)</b>	A two-letter code to indicate the reference for the citation plus volume, number, page, etc., or name of individual.
<b>Citeref</b>	The volume, number, etc. of the reference. Or a person's name.
<b>Citedate</b>	Date of the publication or information source.

## tblCodes

This file contains the codes and their meanings. Codes have been used to save space, provide consistency, and to aid in queries. This table allows the meanings of the codes to be displayed or printed.

<b>Cdkey</b>	This is an index that contains two items of data, the Cdset and the Cditem.
<b>Cdset</b>	A code which describes the code set. This code is shown in parentheses following the fieldname in this documentation. For example, citation codes are described under the code set REF.

- Cditem**      The code as it appears in the database. For example, the citation code for the Nittany Grotto News is NG.
- Cdname**      The meaning of the code which appears in Cditem. Although a maximum of 30 characters are allowed, many meanings have been shortened to conserve space on any printout or display.
- Cdoth**        If the code set is geologic formation code (FOR), this field contains the lithology code.

## tblCounty

This file contains county codes and county names within the State. It is used to display the name of a county since only the code is stored in tblCaves.

- Conumber**    The three digit county code as described in Ref. FIPS PUB 6-3 (1979).
- Coname**      The name of the county.

## tblLife

This file contains sightings of cave life. This section has not been fully developed. This file may contain multiple records for the same cave.

- Ident**        The identifier of the cave described in tblCaves.
- Dte**          The most recent date the record was updated.
- Lfcode**      A six-letter code which indicates the type of life observed.
- Obsquant**    The quantity of life observed.
- Obscode**    A one-letter code to indicate whether the life was collected or sighted.
- Obsdate**    The date the observation was made.
- Name**        The name of the life observed.

## tblQuads

This file contains information about the quadrangles in the State. In the prior version of the software, this table was used to automatically enter the quadrangle code when the user entered the latitude and longitude - if the quadrangle code was blank in tblCaves. If tblCaves already had a quadrangle code, the software would display an alert if the quadrangle code didn't match the latitude and longitude. This feature has not yet been implemented in the

current software.

**Latlon** The latitude and longitude for the southeast corner of the quadrangle.

**Name** The name by which the quadrangle is known.

**Code** The code used in tblCaves.

## tblSigns

This file contains information about the Cave Conservation signs that have been placed in caves. The project is sponsored by the Mid Appalachian Region. In recent years the signs have been available for sale for any reason.

**Ident** The identifier of the cave described in tblCaves.

**Dte** The most recent date the record was updated.

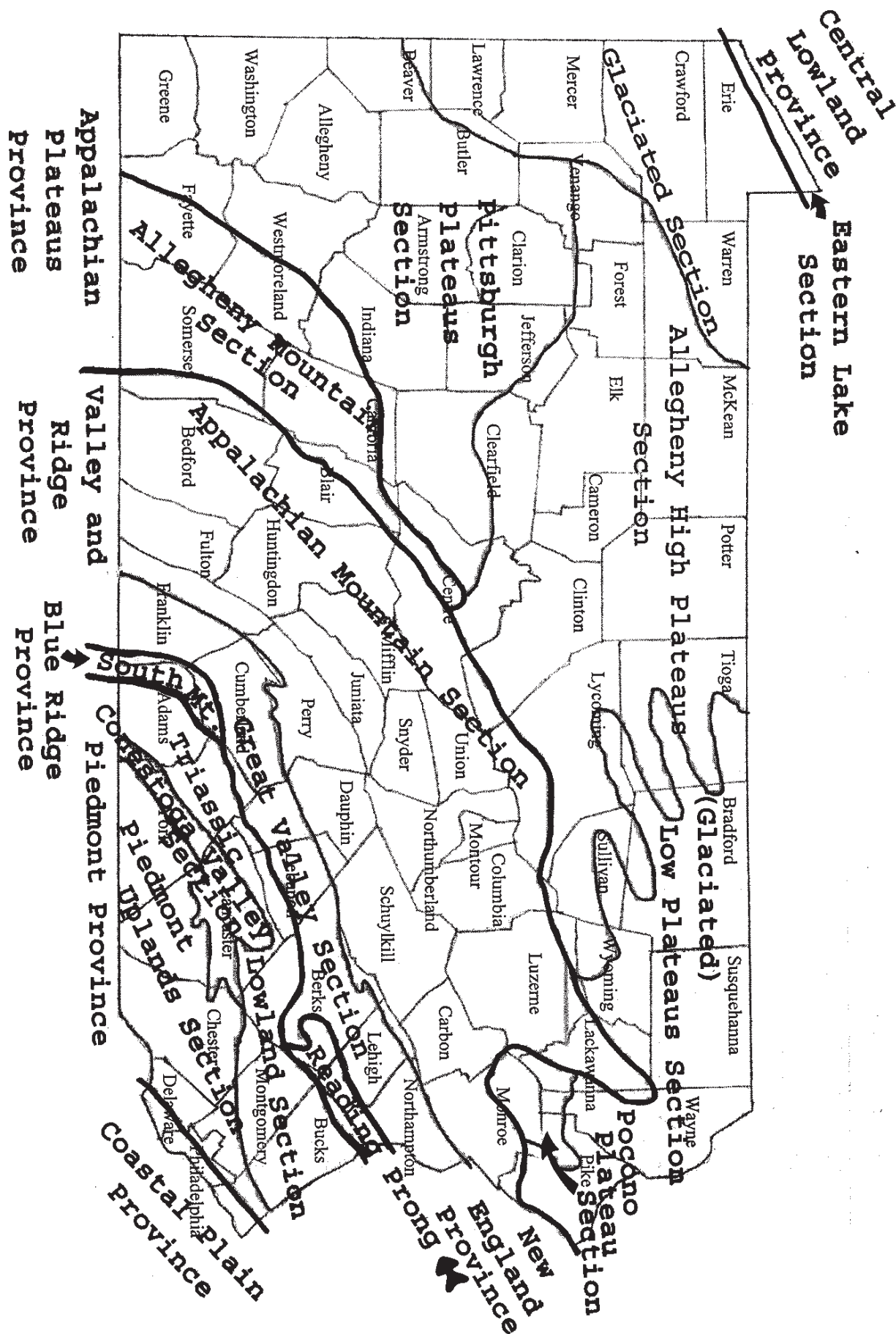
**Signdate** The date on which the sign was sold to a person or organization

**Grotto** The grotto or person who purchased the sign whether to place in a cave or for other purposes.

**Donor** The person or group who donated the sign to the "Grotto" for placement in a particular cave.

**Quant** The number of signs purchased.

# Physiographic Provinces of Pennsylvania



## County Codes

001	Adams	047	Elk	093	Montour
003	Allegheny	049	Erie	095	Northampton
005	Armstrong	051	Fayette	097	Northumberland
007	Beaver	053	Forest	099	Perry
009	Bedford	055	Franklin	101	Philadelphia
011	Berks	057	Fulton	103	Pike
013	Blair	059	Greene	105	Potter
015	Bradford	061	Huntingdon	107	Schuylkill
017	Bucks	063	Indiana	109	Snyder
019	Butler	065	Jefferson	111	Somerset
021	Cambria	067	Juniata	113	Sullivan
023	Cameron	069	Lackawanna	115	Susquehanna
025	Carbon	071	Lancaster	117	Tioga
027	Centre	073	Lawrence	119	Union
029	Chester	075	Lebanon	121	Venango
031	Clarion	077	Lehigh	123	Warren
033	Clearfield	079	Luzerne	125	Washington
035	Clinton	081	Lycoming	127	Wayne
037	Columbia	083	McKean	129	Westmoreland
039	Crawford	085	Mercer	131	Wyoming
041	Cumberland	087	Mifflin	133	York
043	Dauphin	089	Monroe		
045	Delaware	091	Montgomery		

## Lithology Codes

A	Alluvium	O	Metamorphic Fine Gr (schist)
B	Sedimentary Rock, Unclassified	OC	Metamorphic Fine Gr Conglomera
C	Conglomerate	P	Clay
D	Dolomite	PF	Clay, Shale
DL	Dolomite Limestone	Q	Silt or Loess
DLV	Dolomite, Limestone, Sandstone	R	Sand and Gravel
DV	Dolomite Sandstone	S	Sand
E	Gypsum or Anhydrite	T	Till
F	Shale	U	Unconsolidated Sediments
FL	Shale, Limestone	V	Sandstone
FLZ	Shale, Limestone, Other	VC	Sandstone Conglomerate
FV	Shale, Sandstone	VCF	Sandstone Conglomerate, Shale
FVC	Shale, Sandstone, Congloerate	VCK	Sandstone Conglomerate, Coal
FVL	Shale, Sandstone, Limestone	VF	Sandstone, Shale
FW	Shale Siltstone	VFC	Sandstone, Shale Conglomerate
FWV	Shale, Siltstone, Sandstone	VFL	Sandstone, Shale, Limestone
FZ	Shale Others	VL	Sandstone, Limestone
FZL	Shale, Other, Limestone	W	Siltstone (gray Waste)
G	Gravel	X	Silty Sand
H	Igueous, Granular	Y	Clayey Gravel
I	Igueous, Aphantic or Glossy	Z	Other
J	Igueous, Unconsolidated	ZCH	Chert
K	Coal	ZCY	Cyclothem
L	Limestone	ZD	Dolomite, Impure
LD	Limestone, Dolomite	ZF	Shale, Impure; Intermixed
LF	Limestone, Shale	ZFL	Shale & Limestone Conglomerate
LFZ	Limestone, Shale, Other	ZL	Limestone, Impure; Intermixed
LS	Limestone, Sand	ZLC	Cherty Limestone
LZD	Limestone, Other, Dolomite	ZLD	Dolomitic Limestone
M	Marl or Shell Marl	ZLF	Limestone, Shaley; Imbed Shale
N	Metamorphic Coarse Gr	ZLV	Sandy Limestone / Imbed Shale
NH	Metamorphic Crse Gr & Igueous	ZV	Sandstone, Impure; Intermixed
NO	Metamorphic Coarse & Fine Gr	ZVC	Quartzite Conglomerate
NOC	Metamorphic Crse & Fine Gr Con		

# Drainage Basin Codes

01	<b>Delaware R</b>	09B	Kettle, Young Womans Cr
01A	East Wayne Co	09C	Bald Eagle Cr
01B	Lakawaxen R	10	<b>W Br Susquehanna R</b>
01C	Lake Wallenpaupack	10A	Lycoming, Larrys Cr
01D	Bushkill Cr	10B	Loyalsock Cr
01E	Pocono Cr	10C	Buffalo, White Deer Hole, Deer
01F	E Northampton Co	10D	Muncy, Chillisquaque Cr
02	<b>Delaware R</b>	11	<b>Juniata R</b>
02A	Upr Lehigh R	11A	Frankstown Br Juniata, Ltl Jun
02B	Middle Lehigh R	11B	Standing Stone, Crookea Cr
02C	Lwr Lehigh R	11C	Upr Raystown Br Juniata r
02D	Haycock Cr	11D	Lwr Raystown Br Juniata r
02E	SE Bucks Co	12	<b>Juniata R</b>
02F	Neshaminy Cr	12A	Kishacoquillas, Honey, Lost Cr
03	<b>Delaware R</b>	12B	Tuscorora, Buffalo, Cocolamus
03A	Schuylkill R Headwaters	12C	Auwig, Mill, Hares Valley, Hil
03B	Maiden Cr; Schuylkill R	13	<b>Potomac R</b>
03C	Tulpehocken Cr; Schuylkill R	13A	Wills, Evitts Cr
03D	Manatawny, French, Pickering	13B	Tonoloway Cr
03E	Perkiomen Cr	13C	Conocheaque Cr
03F	Wissahickon, Valley Cr	13D	Monocacy R
03G	Dairy, Crum, Ridley, Chester	14	<b>Genesee R</b>
03H	Brandywine Cr	15	<b>Lake Erie Shore</b>
03I	Christina R	16	<b>Allegheny R</b>
04	<b>E Br Susquehanna R</b>	16A	Upr French Cr
04A	Cowanesque, Tioga R	16B	Conewago, Brokenstraw Cr
04B	Chemung R	16C	Allegheny Head; Oswayo Cr
04C	Sugar, Towanda Cr	16D	Lwr French Cr
04D	Wyalusing, Wysox Cr	16E	Oil, Hemlock, Pithole Cr
04E	Upr Susquehanna R	16F	Tionesta, W Hickory Cr
04F	Tunkhannock Cr	16G	Sandy, E Sandy, Scrubgrass Cr
04G	Mehoopany, Bowman Cr	17	<b>Allegheny R</b>
05	<b>E Br Susquehanna R</b>	17A	Upr Clarion R
05A	Lackawanna R	17B	Lwr Clarion R
05B	Susquehanna near Wilkes Barre	17C	Redbank Cr
05C	Fishing Cr	17D	Mahoning Cr
05D	Nescopeck Cr	17E	Cowanshannock, Crooked Cr
05E	Catawissa, Roaring Cr	18	<b>Allegheny R</b>
06	<b>Mid Br Susquehanna R</b>	18A	Pine, Deer, Bull, Plum, Pucketa
06A	Penns, Middle Cr	18B	Kiskiminetas R
06B	Mahanoy Cr	18C	Loyalhanna, Blacklegs Cr; L Co
06C	Mahantango, Wisconsin, Powell	18D	Mid Conemaugh R; Twolick Cr
07	<b>Lwr Br Susquehanna R</b>	18E	Stony Cr; Upr Conemaugh R
07A	Sherman Cr	18F	Buffalo Cr
07B	Condoquinet Cr	19	<b>Monongahela R</b>
07C	Paxton, Clark, Stony, Fishing	19A	Turtle Cr
07D	Swatara Cr	19B	Tenmile Cr
07E	Yellow Breeches Cr	19C	Monongahela R
07F	S Conewago Cr	19D	Lwr Youghiogheny R
07G	N Conewago, Conoy, Chickies Cr	19E	Upr Youghiogheny R
07H	Codorus Cr	19F	Casselman R
07I	Muddy, Kreutz, Cabin, Beaver	19G	Dunkara, Georges, Jacob, Whitl
07J	Conestoga Cr	20	<b>Ohio R</b>
07K	Conowingo, Octorao, Pequea Cr	20A	Shenango R
08	<b>W Br Susquehanna R</b>	20B	Beaver R
08A	Sinnemahoning Cr	20C	Slippery Rock, Connoquenessing
08B	Chest Cr; S Br Susquehanna r	20D	Raccoon Cr
08C	Clearfield Cr	20E	Buffalo, Wheeling Cr
08D	Moshannon Cr	20F	Chartiers Cr
09	<b>W Br Susquehanna R</b>	20G	Sewickley Cr, Montour Run
09A	Pine Cr		
<b>14</b>	<b>PCC-Cave</b>		

## Geologic Formation Codes with Lithology

3-581	Albite - Chlorite Schist	O	3N-2-G	Conemaugh Formation	ZCY
3N-3-G	Allegheny Group	ZCY	3W-3-L	Conestoga Formation	ZL
3N-21G	Ames Limestone	L	3S1GC1	Conneaut Group	FW
3W-23J	Andesite Lavas	H	3N-11G	Connelsville SS	V
3W-6-J	Annville Formation	L	3N-42G	Connoquenessing SS	V
4—8-U	Anorthosite(Honeybrook Only		3Y-GC3	Conococheague/Allentown Gp.	LD
3W-31C	Antes Shale	ZF	3Q-25	Corry Formation	VF
3Y-H-K	Antietam Formation	NO	3W-GT3	Curtin - Loysburg Formation	ZL
3Y-GA1	Antietam, Harpers Fmtn	NO	3W-7-C	Curtin Formation	ZL
3W-D-C	Axemann Formation	ZLD	3Q-24	Cussewago Formation	VF
3W-2-C	Bald-Eagle Formation	VC	3Q-23	Cuyahoga Formation	VF
4—GG1	Baltimore Gneiss (Gp-G1)		3W-C2C	Dale Summit Member	V
3S453E	Becraft Limestone - In EastL	L	3U-13E	Decker Formation - In East	L
3W-GB1	Beekmantown Group - Central	LD	3S124D	Delaware River Sandstone	V
3W-GB3	Beekmantown Group -Great Vly	LD	3S13-D	Devonian Marine Beds	FV
3W-GB2	Bellefonte & Axemann Group	DLV	3Y-A-K	Elbrook Formation	ZL
3W-C-C	Bellefonte Formation	DV	3S121D	Elk-Mountain Sandstone	V
3W-8-C	Benner Formation	ZL	3W-8-J	Epler Formation	ZLD
3N-13G	Birmingham Shale	F	3S434E	Esopus Shale - Eastern Pa	F
3U-4	Bloomsburg Formation	FW	3N-31G	Freeport Formation	VCF
3U-GB4	Bloomsburg,McKenzie Fmtn	ZF	4—7-U	Gabbroic Gneiss & Gabbro	
3U-21E	Bossardville Formation	LF	3Y-2-C	Gatesburg Formation	ZD
3S436W	Bowmanstown Chert	ZCH	2J-21	Gettysburg Sandstone	VFC
3S134D	Brallier Member	FWV	3S14-A	Girard Formation	LF
2J-22	Brunswick Sandstone	VFC	3N-35G	Glenshaw Fm	VFL
2J-2	Brunswick/Gettysburg Fmtn	VFC	3-52	Granite Gneiss & Granite	N
3N-22G	Brush-Creek Limestone	L	4—5-Q	Granitic Gneiss	N
1C-1	Bryn-Mawr Formation	R	4—4-U	Granitic Gneiss	N
3Y-83K	Buffalo-Springs Limestone	ZLD	4—3-U	Granodiorite	
3Q-21	Burgoon Formation	V	4—2-Q	Granodiorite	
3S133D	Burket Member	FWV	4—4-Q	Graphitic Gneiss	
3N-37G	Butler SS	V	4—9-U	Graphitic Gneiss	
3S433E	Buttermilk-Falls Limestone	L	3W-A2C	Grazier Member	L
3S15-A	Canadaway Formation	VF	3Q-11	Greenbrier/Wymps-Gap Lime	L
1A-2	Cape-May Formation	R	3L-1	Greene Formation	ZCY
3N-36G	Casselman Fm	VCF	4—3-S	Greenstone Schist	
3S12-D	Catskill Formation	FV	3W-B2J	Hamburg Lithotectonic 2&2A	FLZ
3S12-A	Cattaraugus Formation	FVL	3W-B1J	Hamburg Lithotectonic U-1	FZL
3S411	Centerfield Coral Bed		3W-B3J	Hamburg Lithotectonic U-3	FL
3W-62C	Centre-Hall Member	L	3W-B4J	Hamburg Lithotectonic U-4	LFZ
3W-3-J	Chambersburg Formation	ZL	3W-B5J	Hamburg Lithotectonic U-5	FL
3S131D	Chemung Beds	FWV	3W-B6J	Hamburg Lithotectonic U-6	FL
3S13-A	Chemung Formation	FWV	3W-B7J	Hamburg Lithotectonic U-7	FV
3Y-K-K	Chickies/Weverton Fmtn	NO	3W-B8J	Hamburg Lithotectonic U-8	F
3N-33G	Clarion Formation	VCF	3W-B-J	Hamburg Sequence	LFZ
3U-6	Clinton Group	VF	3S4GH3	Hamilton Group (Gp-H3)	ZF
3W-B1C	Clover Member	L	3Y-GY2	Hardyston Formation Group	NOC
3W-4-C	Coburn Formation	ZLF	3Y-J-K	Harpers Formation	O
3W-GT2	Coburn, Salona, & Nealmont	ZL	3S135D	Harrell Member	FWV
3W-2-L	Cocalico Shale Formation	F	3W-A-C	Hatter Formation	ZLD
3-59	Cockeysville Marble	N	2J-25	Heidlersberg Sandstone	VFC
3S455	Coeymans Limestone	ZL	3S45	Helderberg Formation	LF
3W-C3C	Coffee Run Member	D	3T-GH1	Helderberg Group - (Gp-H1)	FL
3W-41C	Coleville Member	L	3Y-K1K	Hellam Conglom	C



# Geologic Formation Codes with Lithology

3Y-KIK	Hellam Conglomerate	C	3Y-J1K	Montalto Quartzite Member	N
3W-4-J	Hershey & Myerstown Fmtn	ZLF	3S412	Montebello Sandstone Member	V
3W-41J	Hershey Limestone	ZLF	3N-41G	Morgantown Sandstone	VCF
3N-43G	Homewood SS	V	3W-6-C	Nealmon Formation	ZL
3S122D	Honesdale Sandstone	V	3S432C	Needmore Shale - Cntrl Pa	F
3-53	Hornblende Gneiss	N	3W-52C	New-Enterprise Member	L
4—6-U	Hornblende Gneiss		2J-41	New-Oxford Sandstone	ZV
4—3-Q	Hornblende Gneiss		3S454	New-Scotland Limestone	ZLC
3W-A1C	Hostler Member	L	3W-E-C	Nittany Formation	ZD
3W-GJ1	Juniata & Bald-Eagle Group	ZV	3W-GN3	Nittany,Stonehenge-Larke Gp	DL
3W-1-C	Juniata Formation	VC	3W-83C	Oak Hall Member	L
3U-61	Keefer Sandstone-Upr Clinton	VF	3-585	Oligoclase Mica Schist	O
3U-GK4	Keyser & Tonoloway Group	ZL	3S43	Onondaga Formation	FL
3U-1	Keyser Formation	L	3W-7-J	Ontelaunee Formation	LZD
3U-GK2	Keyser Thru McKenzie Fmtn	LF	3W-GE1	Ontelaunee,Epler,Rickenbach	DL
3U-GK3	Keyser,Tonoloway,Wills-Creek	FL	3W-31J	Oranda Limestone	L
3Y-E-K	Kinzers Formation	LS	3W-1-L	Ordovician Diabase	H
3N-32G	Kittanning Formation	VCF	3Y-23C	Ore-Hill Member	ZD
3Q-26	Knapp Formation	VF	3S4GR2	Oriskany & Helderberg Group	VFL
3W-F2C	Larke Dolomite/Stonehenge	D	3S44	Oriskany Formation	VL
3Y-D-K	Ledger Formation	D	3S11-A	Oswayo Formation	FWV
2J-3	Lokatong Formation	PF	3S11-D	Oswayo Formation	VF
3Y-K2K	Loudoun Conglomerate	C	3W-21C	Oswego Sandstone	ZV
3Y-24C	Lower-Sandy Member	DV	3S435W	Palmerton Sandstone	V
3Q-13	Loyalhanna, Lime/Calc SS	L	2E-1	Patapsco Formation - Clay	P
3W-B-C	Loysburg Formation	ZLD	3-56	Peach-Bottom Slate & Cardif	OC
3S41	Mahantango Formation	ZF	3-51	Pegmatite	
3S4GH2	Mahantango,Marcellus,Onond	VFL	1A-3	Pensauken Formation - Grvl	G
3N-23G	Mahoning Sandstone	V	3-57	Peters-Creek Schist	O
3S451	Mandata Shale	ZF	4—91U	Pickering Gneiss	
3U-11E	Manlius Formation - In East	L	3N-12G	Pittsburgh SS	VC
3-582	Marburg Schist (W. of Susq)	O	3Y-4-C	Pleasant-Hill Formation	ZLF
3S4GF1	Marcellus & Onondaga Group	VFL	3Q-2	Pocono Group	VCF
3S42	Marcellus Formation	FV	3S132D	Portage Beds	FWV
3W-2-J	Martinsburg Formation	FVL	3S151A	Portage Formation	LF
3Q-1	Mauch-Chunk Formation	VFL	3S452E	Port-Ewen Shale - In East	F
3U-5	McKenzie Formation	FL	3N-1-N	Post Pottsville Formation	VF
3W-32J	Mercersburg Limestone	ZLF	3N-4-G	Pottsville Group	VC
4—1-S	Metabasalt		3N-4-N	Pottsville Group	VCK
4—1-Q	Metadiabase		3U-22E	Poxono Island Beds	LF
4—1-U	Metadiabase		4—2-U	Quartz Monzonite	
3-54	Metagabbro	H	3N-14G	Redstone LS	L
4—2-S	Metarhyolite		3W-3-C	Reedsville Formation	ZF
3-584	Metavolcanics		3S11-X	Riceville Formation (Erie)	ND
3W-42J	Meyerstown Limestone	L	3Y-6-K	Richland Formation	ZD
3W-42C	Milesburg Member	L	3W-9-J	Rickenbach Formation	ZD
3Y-GS2	Millbach & Shaefferstown Gp	ZL	3S441	Ridgeley Sandstone	ZV
3Y-7-K	Millbach Limestone	ZLD	3W-51C	Roaring-Spring Member	L
3W-B2C	Milroy Member	ZLD	3U-62	Rochester Shale	F
3Y-GM2	Mines & Gatesburg Group	LZD	3W-61C	Rodman Member	ZLF
3Y-21C	Mines Member	ZD	3U-12E	Rondout Formation - In East	L
3N-1-G	Monongahela Formation	ZCY	3U-63	Rose-Hill Formation	FV



## Geologic Formation Codes with Lithology

3S121A	Salamanca Sandstone & Cong	VC	3W-84C	Stover Member	ZL
3W-5-C	Salona Formation	ZLF	3S1GS1	Susquehanna Group (Gp-S1)	VF
3N-24G	Saltsburg SS	V	3W-C1C	Tea Creek Member	ZD
1A-1	Sands of Presque-Isle	S	3Y-C-K	Tomstown/Leithsville Fmtn	ZD
3W-21J	Sandstone Interbeds	V	3U-2	Tonoloway Limestone	ZLF
3N-42N	Schuylkill Formation	VCF	3W-GT1	Trenton Group/Champlainian	ZL
3S431C	Selinsgrove Limestone	L	2J-1	Triassic Diabase	H
3-55	Serpentinite		2J-24	Triassic Quartz PbbL Congl	ZVC
4—5-U	Serpentinite		2J-23	Triassic Shale & Lime Congl	ZFL
3-5A	Setters Quartzite	N	3S136D	Trimmers-Rock Member	FWV
3Y-8-K	Shaefferstown Limestone	ZLF	3Q-12	Trough-Creek Limestone	L
3W-22J	Shale, SS & LS Interbeds	FVL	3S137D	Tully Limestone	L
3N-41N	Sharp-Mountain Formation	VC	3N-43N	Tumbling-Run Formation	VCF
3U-GS3	Shawangunk Formation	ZV	3S421	Turkey-Ridge Sandstone	V
3Q-22	Shenango Formation	VF	3U-7	Tuscarora Formation	VC
3W-33J	Shippensburg Limestone	L	3V-1	Undifferentiated Ordovician	
3S123D	Shohola Sandstone	V	3Y-22C	Upper-Sandy Member	ZD
3S442	Shriver Limestone	ZL	3W-81C	Valentine Member	L
3Y-82K	Snitz-Creek Dolomite	ZD	3W-82C	Valley View Member	ZLF
3Y-81K	Snitz-Creek, Buffalo-Springs	LD	3N-34G	Vanport Limestone	L
3W-9-C	Snyder Formation	ZLD	3Y-F-K	Vintage Formation	ZD
3-521	Springfield Granodiorite		3-583	Wakefield Marble	N
3W-5-J	St. Paul Group	ZL	3Y-3-C	Warrior Formation	ZL
2J-42	Stockton Sandstone	ZV	3M-1	Washington Formation	ZCY
2J-4	Stockton/New-Oxford Fmtn	ZV	3Y-B-K	Waynesboro Formation	VFL
3W-A-J	Stonehenge Formation	ZL	3Y-5-C	Waynesboro Formation	FVC
3W-F1C	Stonehenge Limestone	ZL	3U-3	Wills-Creek Formation	FW
3W-F-C	Stonehenge-Larke Formation	LD	3U-GM1	Wills-Creek, Bloomsburg, McKean	FZ
3W-6SJ	Stones River	ZL	3-58	Wissahickon Formation	
3W-6-S	Stones River Limestone	L			

## Quadrangle Codes

149A	Abbottstown	105B	Bellefonte	108C	Burnt Cabins
050B	Accident	090B	Bellegrove	214D	Bushkill
169C	Airville	116C	Belleville	025C	Butler
001B	Albion	086D	Bellwood	107C	Butler Knob
202B	Aldenville	215D	Belvidere	129A	Caledonia Park
096D	Alexandria	151A	Bentley Creek	028C	California
126A	Alfarata	164A	Benton	211D	Callicoon
006D	Aliquippa	069A	Berlin	011D	Cambridge Springs
106D	Allensville	177B	Bernville	011B	Cambridge Springs NE
206C	Allentown East	174C	Berwick	219B	Camden
196D	Allentown West	005A	Bessemer	093A	Cameron
144C	Allenwood	008E	Bethany	009F	Cameron W Va-Pa
086C	Altoona	167B	Bethel	123A	Cammal
078B	Alum Bank	228C	Beverly	004F	Campbell
089D	Amaranth	099D	Big Cove Tannery	017C	Canonsburg
218A	Ambler	139A	Biglerville	142B	Canton
016C	Ambridge	187D	Birdsboro	192D	Carbondale
018C	Amity	095B	Black Moshannon	138A	Carlisle
127C	Andersonburg	020A	Blacksville	063D	Carman
002F	Andover	117D	Blain	029A	Carmichaels
122B	Antrim	117C	Blairs Mills	134C	Carroll
129B	Arendtsville	047B	Blairsville	076C	Carrolltown
090A	Artemas	194D	Blakeslee	097D	Cassville
121C	Asaph	086A	Blandburg	206A	Catasauqua
165D	Ashland	012B	Blooming Valley	165A	Catawissa
076D	Ashville	164C	Bloomsburg	122C	Cedar Run
176D	Auburn	132B	Blossburg	196B	Cementon
172B	Auburn Center	077D	Blue Knob	183A	Center Moreland
107D	Aughwick	130A	Blue Ridge Summit	022B	Centerville
092B	Austin	143A	Bodines	068D	Central City
007C	Avella	057A	Bolivar	115C	Centre Hall
060B	Avilton	058B	Boswell	119A	Chambersburg
193C	Avoca	197C	Boyertown	089C	Chaneysville
046C	Avonmore	027B	Braddock	132A	Cherry Flats
102A	Ayers Hill	071A	Bradford	052A	Cherry Grove
016A	Baden	040B	Brandonville	100B	Cherry Run
058C	Bakersville	073C	Brandy Camp	102B	Cherry Springs
215C	Bangor	099A	Breezewood	035A	Chicora
143B	Barbours	209D	Bridgeport	195A	Christmans
024A	Barkeyville	017D	Bridgeville	051D	Clarendon
066B	Barnesboro	228D	Bristol	044A	Clarion
116A	Barrville	205A	Brodheads ville	008C	Claysville
190A	Bay View	101D	Brookland	110A	Clear Spring
079D	Beans Cove	054B	Brookville	084C	Clearfield
105A	Bear Knob	039C	Brownfield	089A	Clearville
006B	Beaver	040A	Bruceton Mills	192B	Clifford
001C	Beaver Center	056D	Brush Valley	007B	Clinton
005D	Beaver Falls	204B	Buck Hill Falls	056B	Clymer
136A	Beaver Springs	217D	Buckingham	076B	Coalport
077C	Beaverdale	079A	Buffalo Mills	189B	Coatesville
135C	Beavertown	081B	Bullis Mills	042B	Cobham
078D	Bedford	007A	Burgettstown	125C	Coburn
217A	Bedminster	116B	Burnham	012D	Cochran ton
114D	Beech Creek	065D	Burnside	133D	Cogan Station

## Quadrangle Codes

208A	Collegeville	217C	Doylestown	064B	Falls Creek
162D	Colley	093C	Driftwood	108D	Fannettsburg
168C	Columbia East	064D	DuBois	114B	Farrandsville
158D	Columbia West	137B	Duncannon	170A	Fawn Grove
031B	Columbus	162C	Dushore	028D	Fayette City
066D	Colver	173A	Dutch Mtn	093B	First Fork
066A	Commodore	153B	Eagles Mere	224C	Flatbrookville
169B	Conestoga	035B	East Brady	187B	Fleetwood
049D	Confluence	025B	East Butler	080B	Flintstone
001E	Conneaut	197B	East Greenville	202A	Forest City
002D	Conneaut Lake	006E	East Liverpool North	218D	Frankford
001D	Conneautville	006F	East Liverpool South	023B	Franklin
038D	Connellsville	005F	East Palestine	181B	Franklin Forks
180A	Conowingo Dam	001A	East Springfield	096B	Franklinville
102C	Conrad	214C	East Stroudsburg	087B	Frankstown
175B	Corynham	151C	East Troy	167A	Fredericksburg
053C	Cooksburg	216A	Easton	003D	Fredonia
054D	Coolspring	024B	Eau Claire	145C	Freeburg
061C	Cornplanter Bridge	077A	Ebensburg	184C	Freeland
061A	Cornplanter Run	223C	Edgemere	036A	Freeport
031A	Corry	011A	Edinboro North	216D	Frenchtown
054A	Corsica	011C	Edinboro South	094C	Frenchville
091D	Coudersport	004C	Edinburg	176C	Friedensburg
033C	Cranberry	046B	Elderton	171B	Friendsville
077B	Cresson	081A	Eldred	050A	Friendsville, MD
131C	Crooked Creek	222C	Eldred, NJ	070A	Frostburg
082A	Crosby	158B	Elizabethtown	043C	Fryburg
224B	Culvers Gap	146D	Elizabethville	039D	Ft. Necessity
070B	Cumberland	163C	Elk Grove	112A	Galeton
026B	Curtisville	121B	Elkland	212A	Galilee
075B	Curwensville	074D	Elliot Park	179B	Gap
071D	Cyclone	101A	Ellisburg	019D	Garards Fort
146A	Dalmatia	018D	Ellsworth	067D	Geistown
192C	Dalton	188B	Elverson	012C	Geneva
212B	Damascus	034A	Emlenton	218C	Germantown
155B	Danville	130B	Emmitsburg	139C	Gettysburg
038C	Dawson	092C	Emporium	141B	Gillett
055A	Dayton	016D	Emsworth	027C	Glassport
175D	Delano	147B	Enders	142A	Gleason
170B	Delta	123B	English Center	072D	Glen Hazel
022D	Dempseytown	097C	Entriaken	085A	Glen Richey
083D	Dents Run	178A	Ephrata	159C	Glen Rock
071B	Derrick City	—B	Erie North	113D	Glen Union
047D	Derry	—DD	Erie South	026C	Glenshaw
094A	Devils Elbow	056A	Ernest	032B	Grand Valley
128D	Dickinson	015D	Evans City	060A	Grantsville
138D	Dillsburg	088D	Everett East	157A	Grantville
045B	Distant	088C	Everett West	191A	Great Bend
106C	Donation	080A	Evitts Creek	119C	Greencastle
048C	Donegal	182D	Factoryville	004B	Greenfield
028B	Donora	129D	Fairfield	037D	Greensburg
148D	Dover	069D	Fairhope	003B	Greenville East
198C	Downingtown	—D	Fairview	003A	Greenville West
118A	Doylestown	—C	Fairview SW	014B	Grove City

## Quadrangle Codes

142D	Grover	056C	Indiana	195C	Lehighton
018B	Hackett	157B	Indiantown Gap	148A	Lemoyne
013A	Hadley	129C	Iron Springs	192A	Lenoxville
120A	Hagerstown	075D	Irvona	178C	Leola
147A	Halifax	037C	Irwin	002E	Leon
063A	Hallton	013C	Jackson Center	171C	LeRaysville
186C	Hamburg	131B	Jackson Summit	152A	Leroy
103A	Hammersley Fork	062D	James City	071C	Lewis Run
-CCC	Hammett	172C	Jenningsville	145A	Lewisburg
139B	Hampton	123C	Jersey Mills	116D	Lewistown
201B	Hancock	124B	Jersey Shore	132D	Liberty
100A	Hancock W VA	067C	Johnstown	058A	Ligonier
149C	Hanover	105C	Julian	134A	Linden
—AA	Harbor Creek	062B	Kane	150B	Lineboro
191C	Harford	094D	Karthaus	002A	Linesville
014C	Harlansburg	103C	Keating	161A	Litchfield
002B	Harmonsburg	121D	Keeneyville	168B	Lititz
147D	Harrisburg East	042D	Kellettville	171A	Little Meadows
147C	Harrisburg West	023D	Kennerdell	140B	Littlestown
111A	Harrison Valley	199C	Kennett Square	010E	Littleton
135A	Hartleton	073D	Kersey	124A	Lock Haven
002C	Hartstown	183C	Kingston	124D	Loganton
173D	Harveys Lake	049B	Kingwood	211C	Long Eddy
076A	Hastings	003E	Kinsman	163B	Lopez
218B	Hatboro	179D	Kirkwood	041A	Lottsville
213A	Hawley	035D	Kittanning	043D	Lucinda
072B	Hazel Hurst	156A	Klingerstown	062A	Ludlow
064A	Hazen	034B	Knox	217B	Lumberville
185A	Hazleton	121A	Knoxville	074C	Luthersburg
206D	Hellertown	033D	Kossuth	156C	Lykens
157C	Hershey	205C	Kunkletown	052D	Lynch
194C	Hickory Run	186D	Kutztown	115B	Madisonburg
024D	Hilliards	172A	Laceyville	075A	Mahaffey
153A	Hillsgrove	154B	Lairdsville	009E	Majorsville
009D	Holbrook	203A	Lake Ariel	198D	Malvern
087A	Holidaysburg	021D	Lake Canadohta	048A	Mammoth
169D	Holtwood	201D	Lake Como	197A	Manatawny
202D	Honesdale	030B	Lake Lynn	150A	Manchester
188C	Honey Brook	224A	Lake Maskenozha	168A	Manheim
006C	Hookstown	203B	Lakeville	131D	Mansfield
068A	Hooversville	227C	Lambertville	209C	Marcus Hook
182B	Hop Bottom	168D	Lancaster	053B	Marienville East
088B	Hopewell	127D	Landisburg	053A	Marienville West
085D	Houtzdale	208B	Landsdale	055D	Marion Center
114C	Howard	228A	Langhorne	059C	Markleton
114A	Howard NW	209B	Lansdowne	016B	Mars
154A	Hughesville	163A	Laporte	112B	Marshlands
010A	Hundred	047C	Latrobe	087D	Martinsburg
143D	Huntersville	181A	Laurel Lake	110B	Mason Dixon
097B	Huntingdon	171D	Lawton	029C	Masontown
084A	Huntley	167C	Lebanon	019B	Mather
098D	Hustontown	084D	Lecontes Mills	052C	Mayburg
079C	Hyndman	112D	Lee Fire Tower	106B	McAlevys Fort
127B	Ickesburg	036B	Leechburg	126B	McClure

## Quadrangle Codes

109A	McConnellsburg	038B	Mt. Pleasant	091B	Oswayo
117B	McCoysville	144B	Muncy	152D	Overton
065B	McGees Mills	063C	Munderf	189C	Oxford
046D	McIntyre	059B	Murdock	195D	Palmerton
027D	McKeesport	037A	Murrysville	157D	Palmyra
139D	McSherrystown	174B	Nanticoke	034C	Parker
117A	McVeytown	067B	Nantyglo	189A	Parquesburg
099B	Meadow Grounds	212D	Narrowsburg	213D	Pecks Pond
012A	Meadville	132C	Nauvoo	074B	Penfield
138B	Mechanicsburg	206B	Nazareth	227D	Pennington
209A	Media	099C	Needmore	207C	Perkiomenville
089B	Mench	185D	Nesquehoning	219A	Philadelphia
014A	Mercer	069B	New Baltimore	095A	Philipsburg
109C	Mercersburg	044D	New Bethlehem	198B	Phoenixville
172D	Meshoppen	004D	New Castle North	153C	Picture Rocks
126D	Mexico	005B	New Castle South	001F	Pierpont
059D	Meyersdale	088A	New Enterprise	146B	Pillow
135D	Middleburg	057B	New Florence	166C	Pine Grove
158A	Middletown	160A	New Freedom	106A	Pine Grove Mills
006A	Midland	009C	New Freeport	027A	Pittsburgh East
007D	Midway	005C	New Galilee	017B	Pittsburgh West
135B	Mifflinburg	178D	New Holland	041C	Pittsfield
126C	Mifflintown	036C	New Kensington East	183D	Pittston
164D	Mifflinville	026D	New Kensington West	128B	Plainfield
223D	Milford	013B	New Lebanon	194A	Pleasant View Summit
207A	Milford Square	005E	New Middletown	032D	Pleasantville
124C	Mill Hall	186A	New Ringgold	055C	Plumville
049A	Mill Run	029B	New Salem	204C	Pocono Pines
021C	Millers Station	186B	New Tripoli	195B	Pohopoco Mtn
146C	Millersburg	190B	Newark West	023C	Polk
136C	Millerstown	118B	Newburg	223B	Pond Eddy
141A	Millerton	203D	Newfoundland	081D	Port Allegany
125A	Millheim	137A	Newport	233A	Port Jervis North
154D	Millville	107B	Newton Hamilton	233C	Port Jervis South
144D	Milton	128A	Newville	095D	Port Matilda
166B	Minersville	208D	Norristown	015A	Portersville
115A	Mingoville	160B	Norrisville	215B	Portland
028A	Monongahela	—BB	North East	063B	Portland Mills
162A	Monroeton	145B	Northumberland	111B	Potter Brook
143C	Montoursville North	082B	Norwich	094B	Pottersdale
144A	Montoursville South	173B	Noxen	198A	Pottstown
181D	Montrose East	175A	Nuremberg	176A	Pottsville
181C	Montrose West	019C	Oak Forest	152B	Powell
188A	Morgantown	017A	Oakdale	033B	President
030A	Morgantown North	078A	Ogletown	213C	Promised Land
122D	Morris	049C	Ohiopyle	015B	Prospect
193D	Moscow	033A	Oil City	008D	Prosperity
045C	Mosgrove	112C	Oleona	065A	Punxsutawney
138C	Mount Holly Springs	193B	Olyphant	207B	Quakertown
204D	Mount Pocono	003F	Orangeville	179A	Quarryville
107A	Mount Union	108A	Orbisonia	057D	Rachelwood
165C	Mt. Carmel	201C	Orson	079B	Rainsburg
025A	Mt. Chestnut	176B	Orwigsburg	142C	Ralston
072A	Mt. Jewett	020B	Osage	085C	Ramey

## Quadrangle Codes

183B	Ransom	175C	Shenandoah	054C	Summerville
083A	Rathbun	137C	Shermansdale	145D	Sunbury
187C	Reading	174A	Shickshinny	191B	Susquehanna
159B	Red Lion	091A	Shinglehouse	—CC	Swanville
163D	Red Rock	118D	Shippensburg	166D	Swatara Hill
113C	Renovo East	223A	Shohola	101C	Sweden Valley
103D	Renovo West	102D	Short Run	173C	Sweet Valley
136D	Reward	165B	Shumans	174D	Sybertsville
064C	Reynoldsville	152C	Shunk	185C	Tamaqua
082D	Rich Valley	053D	Sigel	103B	Tamarack
136B	Richfield	177D	Sinking Spring	140A	Taneytown
167D	Richland	093D	Sinnemahoning	207D	Telford
073A	Ridgway	214A	Skytop	187A	Temple
216C	Riegelsville	113B	Slate Run	045A	Templeton
034D	Rimersburg	196A	Slatedale	178B	Terre Hill
180B	Rising Sun	037B	Slickville	084B	The Knobs
155A	Riverside	044C	Sligo	191D	Thompson
087C	Roaring Spring	014D	Slippery Rock	194B	Thornhurst
065C	Rochester Mills	081C	Smethport	122A	Tiadaghton
059A	Rockwood	029D	Smithfield	042A	Tidioute
009B	Rogersville	120B	Smithsburg	131A	Tioga
161D	Rome	038A	Smithton	043A	Tionesta
141C	Roseville	104C	Snow Shoe	086B	Tipton
091C	Roulette	104B	Snow Shoe NE	032A	Titusville North
213B	Rowland	104A	Snow Shoe NW	032C	Titusville South
118C	Roxbury	104D	Snow Shoe SE	204A	Tobyhanna
045D	Rural Valley	058D	Somerset	196C	Topton
051A	Russell	153D	Sonestown	161C	Towanda
062C	Russell City	039B	South Connellsville	156D	Tower City
111D	Sabinsville	031C	Spartansburg	022A	Townville
074A	Sabula	031D	Spring Creek	166A	Tremont
169A	Safe Harbor	115D	Spring Mills	238A	Trenton East
133C	Salladasburg	182A	Springville	228B	Trenton West
098B	Salttillo	096C	Spruce Creek	155C	Treverton
047A	Saltsburg	127A	Spruce Hill	133B	Trout Run
013D	Sandy Lake	073B	St. Marys	141D	Troy
095C	Sandy Ridge	109B	St. Thomas	182C	Tunkhannock
197D	Sassamansville	048B	Stahlstown	214B	Twelvemile Pond
025D	Saxonburg	201A	Starrucca	043B	Tylersburg
098A	Saxton	105D	State College	096A	Tyrone
205B	Saylorsburg	148B	Steelton	151D	Ulster
151B	Sayre	203C	Sterling	101B	Ulysses
051B	Scandia	007F	Steubenville East	021B	Union City
078C	Schellsburg	159D	Stewartstown	039A	Uniontown
119B	Scotland	061B	Stickney	199A	Unionville
193A	Scranton	164B	Stillwater	023A	Utica
048D	Seven Springs	227A	Stockton	026A	Valencia
149D	Seven Valleys	068C	Stoystown	055B	Valier
108B	Shade Gap	044B	Strattanville	208C	Valley Forge
155D	Shamokin	177A	Strausstown	008F	Valley Grove
004A	Sharon East	066C	Strongstown	156B	Valley View
004E	Sharon West	215A	Stroudsburg	036D	Vandergrift
003C	Sharpsville	041B	Sugar Grove	067A	Vintondale
052B	Sheffield	022C	Sugar Lake	010B	Wadestown



## Quadrangle Codes

188D	Wagontown	199B	West Chester	134B	Williamsport
179C	Wakefield	083B	West Creek	134D	Williamsport SE
085B	Wallacetown	189D	West Grove	199D	Wilmington North
128C	Walnut Bottom	042C	West Hickory	057C	Wilpen
051C	Warren	008A	West Middletown	205D	Wind Gap
018A	Washington East	111C	West Pike	009A	Wind Ridge
008B	Washington West	024C	West Sunbury	068B	Windber
154C	Washingtonville	149B	West York	161B	Windham
021A	Waterford	061D	Westline	069C	Wittenberg
123D	Waterville	075C	Westover	177C	Womelsdorf
-DDD	Wattsburg	092D	Wharton	219C	Woodbury
202C	Waymart	184D	White Haven	125B	Woodward
119D	Waynesboro	212C	White Mills	035C	Worthington
019A	Waynesburg	133A	White Pine	162B	Wyalusing
185B	Weatherly	046A	Whitesburg	159A	York
083C	Weedville	072C	Wilcox	158C	York Haven
125D	Weikert	082C	Wildwood Fire Tower	113A	Young Womans Creek
007E	Weirton	184B	Wilkes-Barre East	041D	Youngsville
098C	Wells Tannery	184A	Wilkes-Barre West	015C	Zelienople
148C	Wellsville	097A	Williamsburg		
137D	Wertzville	109D	Williamson		

# The Pennsylvania Cave Conservancy - Data Collection Form

Cave name \_\_\_\_\_ County \_\_\_\_\_ Date \_\_\_\_\_

Aliases \_\_\_\_\_

Quadrangle \_\_\_\_\_ Geologic Formation \_\_\_\_\_ Drainage Basin \_\_\_\_\_

**N** Not classified  
**C** Classified

**Open/Closed Status**

- O Open
- U Unknown
- I Closed intermittently
- N Closed naturally
- P Closed by a person
- Q Quarried away - gone
- G Gated

Latitude \_\_\_\_\_  
Longitude \_\_\_\_\_  
Elevation \_\_\_\_\_  
Strike \_\_\_\_\_  
Dip \_\_\_\_\_

**Cave Type**

- N Natural cave
- C Commercial
- W Was commercial
- S Shelter
- M Mine
- F Fictional/Conjectural
- O Oddity

**Physiographic Province**

- 03A Coastal Plain
- 04A Piedmont Upland Section
- 04B Triassic Lowland Section
- 04C Conestoga Valley Section
- 05A Blue Ridge
- 06B Appalachian Mt. Section
- 06D Great Valley Section
- 08C1 Glacial Section(Western)
- 08C2 Glaciated Low Plateaus
- 08D Allegheny Mt. Section
- 08E1 Allegheny High Plateaus
- 08E2 Pittsburgh Plateaus
- 08H Pocono Plateaus
- 09B New England Province
- 12A Eastern Lake Section

**Entrance Type**

- UN Unknown
- EQ Quarry
- ER Roadcut
- EM Mine
- EC Excavated for cave
- SR Resurgence
- SS Sinking stream
- SB Stream bank
- SU Submerged
- DS Dry sinkhole
- DO Outcrop
- DC Cliff face
- DP Pit or dome
- DE Eroded, i.e. hillside

Internal Relief \_\_\_\_\_  
Length \_\_\_\_\_  
Source of length  
E Estimate  
M Map  
S Survey  
U Unknown  
Length Attribute  
E Estimate  
A Additional unmeasured  
T Total of several caves

**Sensitivity (All that apply)**

- F Formations delicate
- E Endangered species
- H Historical/Arch/Paleo
- O Other

**Hazards (All that apply)**

- H Hypothermia
- A Bad air
- B Breakdown unstable
- F Sudden floods
- L Location near danger
- P Pollution
- S Strained owner relations
- T Tight into main cave
- V Vertical/pits

**Citation Information**

- BE Bald Eagle Grotto
- BG Baltimore Grotto News
- BC Bucks County Diviner
- BV Buffalo Valley
- CC Commander Cody
- CR Chestnut Ridge Explorers
- CU Cumberland Valley Caver
- EM Enchanted Mt. Cave Gp.
- FC Franklin Co. Grotto
- HC Huntingdon Co. Cve Hunters
- KC Karst Chronicle
- LT Loyalhanna Troglodyte
- MB MAR Bulletin
- NN Netherworld News
- NG Nittany Grotto News
- NE Northeast Caver
- NB NSS Bulletin
- NJ NSS Journal Caves & Karst
- NS NSS News
- NW NWPCS Journal
- PR Pack Rat Scat
- PS Pa. Geol. Survey Reports
- PD Pa. Dept. Internal Affairs
- PG Philly Grotto Digest
- SD SpeleoDigest
- UR Unpublished report
- WV West Va. Caver
- YK York Grotto News

**Origin**

- S Solutional
- R Talus
- E Erosion (slumping)
- T Tectonic (cracks)
- X Eolian (wind formed)
- I Ice
- L Lava
- U Unknown
- W Sea
- O Other

**Relative Entrance Size**

- L Large 10' & up
- W Walk 5' - 10'
- C Crawl 2' - 4+'
- S Squeeze 1' - 1+'
- T Tight up to 1'
- U Unknown

**Water**

- D Dry
- M Muddy
- I Intermittent stream
- P Pools
- F Flowing water
- S Sumps
- U Underwater (submerged)

**Equipment Codes**

Use codes at right and fill in per examples.

Ft = Feet M = Meters

Examples: H 60Ft or L 10M

**Codes**

- H Hand line - include length
- L Ladder - include length
- R Standing rope - include length
- W Wet suit
- D Diving gear

1. \_\_\_\_\_  
2. \_\_\_\_\_

**Release Form**

- N No release form
- R Release form once
- E Release form each time
- U Unknown

**Entry Access**

- B Blanket permission
- P Permission required each time
- N No caving
- U Unknown

**Owner Type**

- P Private, partnership, or family
- C Company or corporation
- G Government
- U Unknown

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Date \_\_\_\_\_

**Entry access control (if owner controls access, fill in at right)**

Name \_\_\_\_\_ Ph. \_\_\_\_\_

Street \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Email \_\_\_\_\_

**Owner**

Name \_\_\_\_\_ Ph. \_\_\_\_\_

Street \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Email \_\_\_\_\_



# The Pennsylvania Cave Conservancy - Data Collection Form - Page 2

## Profile

- H Horizontal
- B Bi-level (two overlying, distinct, well-developed levels)
- M Multi-level (overlying, well developed levels)
- S Sloping (passage gradient greater than normal stream gradient)
- T Tiered (sequence of several stepped levels)
- V Vertical (major extent of mostly pit development)
- P Pit (no significant horizontal development)
- C Compound or complex (large cave with multiple profiles)
- I Insufficient information

## Map Grade (survey instrumentation)

- 6 Theodolite (or transit) and tape survey
- 5 Compass and tape survey
- 4 Combination of 3 and 5
- 3 Compass and pace survey
- 2 Controlled sketch (angles taken)
- 1 Sketch

## Map Class (survey measurement)

- A Based on memory
- B Details estimated and recorded in cave
- C Measurement of detail made at survey stations only
- D Measurement of detail made in addition to survey stations
- U Unknown

## Passage Pattern

### Linear Development

- 1DL Linear - straight
- 1DS Sinuous - gradual bends
- 1DA Angulate - sharp bends

### Planar Development

- 2BS 2-D sinuous branchwork
- 2BA 2-D angulate branchwork
- 2MA 2-D anastomatic maze
- 2MN 2-D network maze

### Three dimensional development

- 3MS 3-D spongework maze
- 3MA 3-D angulate maze

### Other

- 4ND Indefinite passage development
- 4VC Unique passage development
- 4CD Compound; classic in some sections
- 4CX Complex; multiple structures & dimensions

## Map Quality

- E Excellent (passage detail, section views, profile)
- G Good (passage detail, may have some section views)
- P Poor (line drawing, little or no detail)
- N Little or no value, unreadable

**Map Year** \_\_\_\_\_ (include century digits i.e. 2007)

## Map Storage (original)

- BGR Baltimore Grotto
- BCG Bucks Co. Grotto
- BVG Buffalo Valley Grotto
- CCC Commander Cody Caving Club
- CZM Garrett Czmor
- EMC Enchanted Mt. Cave Group
- FCO Franklin Co. Grotto
- GAG Greater Allentown Grotto
- HCH Huntingdon Co. Cave Hunters
- LOY Loyalhanna Grotto
- MAK Mid-Atlantic Karst Conservancy
- MET MET Grotto
- NIT Nittany Grotto
- NSS NSS
- NWP Northwest Pa. Cave Survey
- PCS Pennsylvania Cave Survey
- PGH Pittsburgh Grotto
- PHL Philly Grotto
- WST Westminster College Caving Group
- YRK York Grotto

- MAP Location shown on map
- OWN With cave owner
- UNK Unknown
- Other \_\_\_\_\_

## Passage Density

- U Unknown
- S Single passage
- L Loose (features greater than 500 ft. apart)
- I Intermediate (features 50-500 ft. apart)
- T Tight (features less than 50 ft. apart)

## Remarks:

## Restricted Dates

- V No caving - Oct. 15 - Apr. 15
- W No caving - Aug. 15 - May 1
- X No caving - Sep. 2 - Apr. 30
- Y No caving - Sep. 16 - May 14

## About the Author

The computer system was developed by Keith D. Wheeland, NSS 2878. Keith is retired from a career in data processing, but still develops and writes computer software systems for the PC. He is active in the National Speleological Society, the Nittany Grotto, the Butler Cave Conservation Society, the Pennsylvania Cave Conservancy, and the Mid Appalachian Region. He has worked on cave projects in Pennsylvania, Virginia, Montana, and the Dominican Republic.

## Acknowledgements

The moving force in getting this system started was Dr. Gordon Dayton. The advisor to the project is Dr. William B. White, Professor of Geochemistry at Penn State now retired.

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